

In the Claims

1-50 (canceled).

51 (new). A composition of matter comprising:

- (a) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (b) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (a);
- (c) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (d) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (e) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (f) a fusion protein comprising a heterologous sequence fused, in frame, to:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (a);

- active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
- (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (g) a purified nucleic acid molecule which encodes a polypeptide comprising:
- (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
- (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning

as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;

- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
- (vi) a fusion protein comprising a heterologous sequence fused, in frame, to:
  - (A) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (B) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (A);
  - (C) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (D) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ

- ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
- (E) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (h) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (i) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (j) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (k) a vector comprising:
- (1) a purified nucleic acid molecule which encodes a polypeptide comprising:
- (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
- (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof,

- said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
- (vi) a fusion protein comprising a heterologous sequence fused, in frame, to:
- (A) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (B) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (A);
- (C) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;

- (D) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
  - (E) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (2) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
  - (3) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or
  - (4) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (I) a host cell transformed with a vector comprising:
    - (1) a purified nucleic acid molecule which encodes a polypeptide comprising:
      - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
      - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a

- biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
- (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
  - (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
  - (vi) a fusion protein comprising a heterologous sequence fused, in frame, to:
    - (A) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
    - (B) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (A);

- (C) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (D) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
  - (E) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (2) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
  - (3) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or
  - (4) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;

- (m) an isolated ligand or compound that binds specifically to a member of the leucine rich repeat containing family of proteins according to (a), (b), (c), (d), (e), or (f);
- (n) an isolated antibody that binds specifically to a member of the leucine rich repeat containing family of proteins according to (a), (b), (c), (d), (e), or (f); or
- (o) a transgenic or knockout non-human animal that has been transformed to express higher, lower or absent levels of a polypeptide comprising:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
  - (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof.

52 (new). The composition of matter according to claim 51, wherein said polypeptide exhibits significant structural homology with a polypeptide having the amino acid sequence given in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22.

53 (new). The composition of matter according to claim 51, wherein said fragment has an antigenic determinant in common with the polypeptide of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 and which consists of 7 or more amino acid residues from the sequence of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22.

54 (new). The composition of matter according to claim 51, wherein said fusion protein comprises a histidine tag.

55 (new). The composition of matter according to claim 54, wherein said fusion protein comprises SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, or SEQ ID NO 34.

56 (new). The composition of matter according to claim 51, wherein said polypeptide is glycosylated.

57 (new). The composition of matter according to claim 51, wherein said polypeptide comprises SEQ ID NO: 10 and is glycosylated at one or more sites selected from amino acid 45, 115, 454, 746 or 756.

58 (new). The composition of matter according to claim 51, further comprising a pharmaceutically acceptable excipient.

59 (new). The composition of matter according to claim 51, wherein said composition of matter is in the form of a kit, said kit comprising a first container containing a nucleic acid probe that hybridizes under stringent conditions with a nucleic acid molecule comprising: (i) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; (ii) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or (iii) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; a second container containing primers useful for amplifying said nucleic acid molecule; and instructions for using the probe and primers for facilitating the diagnosis of disease.

60 (new). The composition of matter according to claim 59, wherein said kit further comprises a third container holding an agent for digesting unhybridized RNA.

61 (new). The composition of matter according to claim 51, wherein said kit comprises an array of nucleic acid molecules, at least one of which is a nucleic acid molecule comprising: (i) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; (ii) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or (iii) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof.

62 (new). The composition of matter according to claim 51, wherein said composition of matter is in the form of a kit comprising a first container comprising one or more antibodies that bind to a polypeptide comprising:

- (a) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (b) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (a);
- (c) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (d) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (e) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
- (f) a fusion protein comprising a heterologous sequence fused, in frame, to:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ

ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;

- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; and

a second container comprising a reagent useful for the detection of a binding reaction between said antibody and said polypeptide.

63 (new). A method of diagnosing a disease in a patient comprising assessing the level of expression or activity of a natural gene encoding a polypeptide in tissue from a patient and comparing said level of expression or activity to a control level, wherein a level that is different to said control level is indicative of disease, wherein said natural gene encodes a polypeptide comprises:

- (a) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (b) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (a);
- (c) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ

- ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (d) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
- (e) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof.

64 (new). The method according to claim 63, wherein said method is carried out *in vitro*.

65 (new). The method according to claim 63, wherein said method of assessing comprises the steps of: (a) contacting a ligand with a biological sample under conditions suitable for the formation of a ligand-polypeptide complex; and (b) detecting said complex.

66 (new). The method according to claim 63, wherein said method of assessing comprises:

- a) contacting a sample of tissue from the patient with a nucleic acid probe under stringent conditions that allow the formation of a hybrid complex between a nucleic acid molecule and the probe;
- b) contacting a control sample with said probe under the same conditions used in step a); and
- c) detecting the presence of hybrid complexes in said samples; wherein detection of levels of the hybrid complex in the patient sample that differ from levels of the hybrid complex in the control sample is indicative of disease and said nucleic acid molecule comprises:

- (i) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (ii) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or
- (iii) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof.

67 (new). The method according to claim 63, wherein said method of assessing comprises:

- a) contacting a sample of nucleic acid from tissue of the patient with a nucleic acid primer under stringent conditions that allow the formation of a hybrid complex between a nucleic acid molecule and the primer;
- b) contacting a control sample with said primer under the same conditions used in step a);
- c) amplifying the sampled nucleic acid; and
- d) detecting the level of amplified nucleic acid from both patient and control samples; wherein detection of levels of the amplified nucleic acid in the patient sample that differ significantly from levels of the amplified nucleic acid in the control sample is indicative of disease.

68 (new). The method according to claim 66, wherein said method of assessing comprises:

- a) obtaining a tissue sample from a patient being tested for disease;
- b) isolating a nucleic acid molecule from said tissue sample; and

- c) diagnosing the patient for disease by detecting the presence of a mutation which is associated with disease in the nucleic acid molecule as an indication of the disease and said nucleic acid molecule comprises:
- (i) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
  - (ii) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or
  - (iii) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof.

69 (new). The method according to claim 68, further comprising amplifying the nucleic acid molecule to form an amplified product and detecting the presence or absence of a mutation in the amplified product.

70 (new). The method according to claim 67, wherein the presence or absence of the mutation in the patient is detected by contacting said nucleic acid molecule with a nucleic acid probe that hybridizes to said nucleic acid molecule under stringent conditions to form a hybrid double-stranded molecule, the hybrid double-stranded molecule having an unhybridized portion of the nucleic acid probe strand at any portion corresponding to a mutation associated with disease; and detecting the presence or absence of an unhybridized portion of the probe strand as an indication of the presence or absence of a disease-associated mutation.

71 (new). The method according to claim 68, wherein the presence or absence of the mutation in the patient is detected by contacting said nucleic acid molecule with a nucleic acid probe that hybridizes to said nucleic acid molecule under stringent conditions to form a hybrid double-

stranded molecule, the hybrid double-stranded molecule having an unhybridized portion of the nucleic acid probe strand at any portion corresponding to a mutation associated with disease; and detecting the presence or absence of an unhybridized portion of the probe strand as an indication of the presence or absence of a disease-associated mutation.

72 (new). The method according to claim 67, wherein said disease is a cell proliferative disorder, autoimmune/inflammatory disorder, arthritis, cardiovascular disorder, neurological disorder, developmental disorder, metabolic disorder, AIDS, renal disease, or an infection.

73 (new). A method of treating a disease in a patient, comprising administering to the patient a composition of matter comprising:

- (a) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (b) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (a);
- (c) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (d) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;

- (e) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (f) a fusion protein comprising a heterologous sequence fused, in frame, to:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
  - (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (g) a purified nucleic acid molecule which encodes a polypeptide comprising:

- (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
- (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
- (vi) a fusion protein comprising a heterologous sequence fused, in frame, to:
  - (A) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (B) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a

- biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (A);
- (C) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (D) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
- (E) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (h) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (i) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (j) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (k) a vector comprising:

- (1) a purified nucleic acid molecule which encodes a polypeptide comprising:
- (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
  - (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
  - (vi) a fusion protein comprising a heterologous sequence fused, in frame, to:
    - (A) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;

- (B) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (A);
  - (C) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (D) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
  - (E) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (2) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
  - (3) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or

- (4) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (l) a host cell transformed with a vector comprising:
- (1) a purified nucleic acid molecule which encodes a polypeptide comprising:
- (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
- (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or

- (vi) a fusion protein comprising a heterologous sequence fused, in frame, to:
- (A) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (B) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (A);
  - (C) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (D) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
  - (E) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;

- (2) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
  - (3) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or
  - (4) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (m) an isolated ligand or compound that binds specifically to a member of the leucine rich repeat containing family of proteins according to (a), (b), (c), (d), (e), or (f); or
  - (n) an isolated antibody that binds specifically to a member of the leucine rich repeat containing family of proteins according to (a), (b), (c), (d), (e), or (f).

74 (new). A method of monitoring the therapeutic treatment of disease in a patient comprising monitoring over a period of time the level of expression or activity of a composition of matter comprising:

- (a) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (b) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (a);
- (c) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;

- (d) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (e) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (f) a fusion protein comprising a heterologous sequence fused, in frame, to:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or

- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
- (g) a purified nucleic acid molecule which encodes a polypeptide comprising:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide; or
  - (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;

wherein altering said level of expression or activity over the period of time towards a control level is indicative of regression of said disease.

75 (new). A method for screening for a compound effective comprising contacting a compound with a composition of matter comprising:

- (a) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (b) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (a);
- (c) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (d) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (e) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (f) a fusion protein comprising a heterologous sequence fused, in frame, to:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ

- ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;
- (g) a purified nucleic acid molecule which encodes a polypeptide comprising:
- (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
- (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
- (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
- (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is

- homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide;
- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof; or
- (vi) a fusion protein comprising a heterologous sequence fused, in frame, to:
- (A) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (B) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (A);
  - (C) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (D) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or
  - (E) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14,

SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;

- (h) a purified nucleic acid molecule comprising the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (i) a purified nucleic acid molecule consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof;
- (j) a purified nucleic acid molecule which hybridizes under high stringency conditions to nucleic acid molecule comprising or consisting of the nucleic acid sequence of SEQ ID NO: 9, SEQ ID NO: 13, SEQ ID NO:15, SEQ ID NO: 17, SEQ ID NO: 19 or SEQ ID NO:21, or a fragment thereof; or
- (k) a transgenic or knockout non-human animal that has been transformed to express higher, lower or absent levels of a polypeptide comprising:
  - (i) an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22;
  - (ii) a fragment of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22 which functions as a biologically active polypeptide and/or has an antigenic determinant in common with the polypeptides of (i);
  - (iii) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or a fragment thereof, said fragment functioning as a biologically active polypeptide and/or has an antigenic determinant in common with said polypeptide;
  - (iv) a functional equivalent of an amino acid sequence that comprises or consists of SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, wherein said functional equivalent is

homologous to the amino acid sequence as recited SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20 or SEQ ID NO: 22, and is a leucine rich repeat containing polypeptide; or

- (v) a polypeptide that has greater than 50% sequence identity with the amino acid sequence recited in SEQ ID NO: 10, SEQ ID NO: 14, SEQ ID NO:16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22 or with active fragments thereof;

and determining the ability of the compound to bind to said polypeptide or said nucleic acid or the effect of the compound on the disease of the animal.